

Effectiveness of Mobile *App* on Fodder Production in Terms of Knowledge Gain among Livestock Farmers of Karnataka

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ABSTRACT

The study deals with the effectiveness of Mobile App on fodder production in terms of knowledge gain among livestock owners. The study was purposively conducted in the state of Karnataka as the Fodder App developed was in Kannada language. Thirty livestock farmers possessing smart phones were selected randomly from each division of the state, thus sample size was 120. The Fodder App provides complete package of practices with audio-visual support, even literates can also access. Study was undertaken to assess the knowledge on fodder production of livestock farmers at pre and post exposure of Fodder App. The findings of the study revealed that majority of the livestock farmers possessed low level of knowledge at the pre-exposure stage, however in the post-exposure stage, majority rose to the high knowledge category showing considerable improvement in knowledge level. Study showed the knowledge gain among all respondents, wherein mean knowledge score at pre and post exposure stages were 8.80 and 21.17 with difference of knowledge gain showing 12.37 i.e 41.23%. The difference observed between the knowledge mean scores of livestock farmers in pre and post exposure stages was found to be statistically significant.

Key words: *Fodder App; Livestock farmers; Knowledge gain;*

In any livestock enterprise, feeding component alone accounts for 60-70% of the total cost of production hence, ensuring enough nutritious fodder from cheaper sources assumes greater importance. But India with deteriorating grazing land became deficit in dry fodder by 11 per cent, green fodder by 35 per cent and concentrates feed by 28 per cent (GOI, 2011). Looking at the vast gap between the demand and supply position, it becomes necessary to put maximum efforts to transfer the scientific potential practices or techniques to farmer's field with the aim to increase the production and productivity of good quality fodders. In this content extension strategies should look in improving knowledge, skills and attitude of the farmers in adoption of growing fodders exclusively for feeding livestock.

Lack of knowledge and information among the livestock farmers is one of the main reasons for not

adoption of cultivation of fodders exclusively for feeding livestock. It is also justified by A Situation Assessment Survey of Farmers done by the National Sample Survey Organization (NSSO) on Access to Modern Technology for Farming, which indicates that only 5.1 per cent of the households access information on animal husbandry against 40.4 per cent for crop farming (NSSO, 2005). Thus the present scenario necessitates the provision of systematic flow of information and knowledge to the livestock farmers for better decision making. Information adoption among farming community is widely acknowledged as one among the critical factors for effective agricultural decision making (Galloway and Mochrie, 2005; Rao, 2006). It has been stressed that the use of Information and Communication Technology (ICT) has a great potential to boost the economy of livestock, agriculture, and rural artisans in

India (Sasidhar and Sharma, 2006). Among ICTs, mobile telephony has emerged as the smart technology of choice of the majority of the urban and even the rural masses (Ansari and Pandey, 2013). As such, mobile phones have been regarded as the widely accessed tool among the farmers for communication and also accessing agriculture-related information. India is the second largest smart phone user country in the world having 220 million smart phone users base with 80 million users in rural India (Anonymous, 2016). Smart phone mobility sequences the nature of farming, the cost of the device is becoming affordable and their feature allows a variety of practical applications to be created. Henceforth it has a wide scope and potential in using it has an information disseminator tool and make the farmer empowered with information. Keeping the above factors into concern the present study was undertaken with the objective of development of new generation smart technology of Android Fodder App in order to improve the knowledge basis for adoption of better practices on fodder production.

METHODOLOGY

Development of “Mobile Fodder App” involved major pre-steps of content development regarding 16 fodders, which are commonly grown. Second step involved the collection of pictures relevant to the content, which were captured from various universities and fodder research institutes. Finally the Mobile Fodder App in vernacular language (Kannada) with audio-visual support was developed using android platform and studio (Fig.1). This App was made available for downloading in Google’s Play store (Fig.2), which could work offline once installed and could be transferred to others using “Shareit” and “Bluetooth” applications. This smart technology of Fodder App provides complete package of practices of sixteen fodders in farmers’ finger tips including required soil and weather conditions, nutritive content, cultivation requirements, harvesting and yield by showing pictures with audio background in local language. Hence even who can’t read and write can also access the information.

The experimental research design pre and post



Fig 1. Fodder App- Main

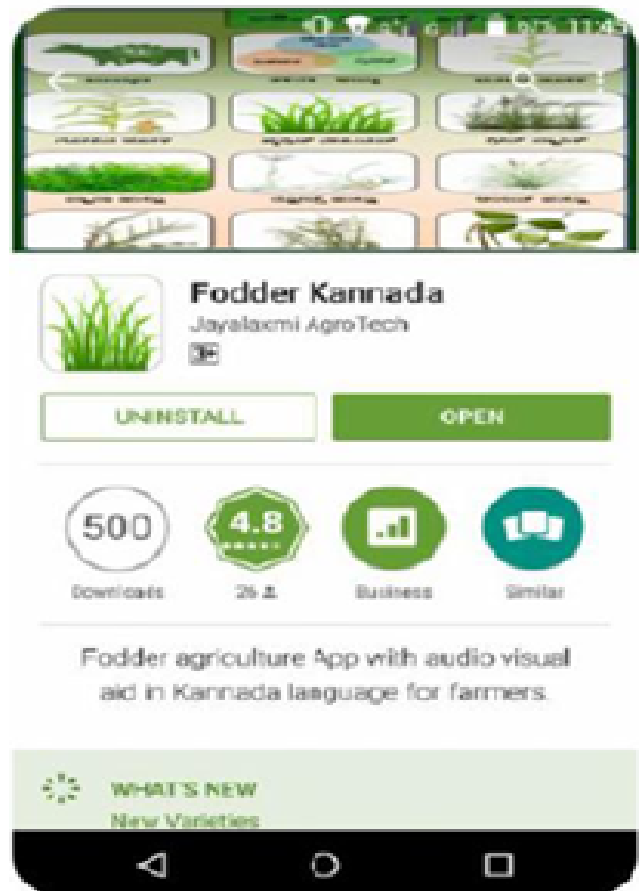


Fig 2. Fodder App on Google’s playstore for download

without control group was used to assess the effectiveness of Mobile App among livestock farmers in terms of knowledge gain. Thirty farmers each from all four division (Bengaluru, Mysuru, Belgaum and Kalburgi) having smart phone and rearing livestock were selected randomly. 'Knowledge gain' in the present study refers to the information and understanding acquired through exposure to Mobile Fodder App. Using pre-tested interview schedule, data was collected from the respondents at two stages (pre and post exposure of Mobile Fodder App). To measure the level of knowledge, for each correct answer the score 1 was assigned while for incorrect response score 0 was given. The summation of scores over the statements constitutes respective knowledge of the respondent. Mean

scores of the respondents of each division were calculated, which indicates the respective mean knowledge score at pre and post stages. The difference between the scores at pre and post exposure showed the knowledge gain and also the respondents were categorized into three groups as low, medium and high level of knowledge based on the class interval of the possible scores that could be obtained by the respondents. For analysis, statistical tools such frequency, percentage, mean, Paired 't' test were used.

RESULTS AND DISCUSSION

Distribution of farmers according to their knowledge level: The distribution of respondents (Table 1) according to their knowledge level on fodder production at pre

Table 1: Distribution of farmers according to their knowledge level at pre and post exposure stage

Knowledge level	Bengaluru Division (n=30)		Mysuru Division (n=30)		Belagavi Division (n=30)		Kalburgi Division (n=30)		Total (N=120)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	Low (1-10)*	15(50.00)	2(6.66)	19(63.34)	4(13.34)	17(56.66)	3(10.00)	21(70.00)	6(20.00)	72(60.00)
Medium (11-20)*	14(46.66)	10(33.34)	11(36.66)	10(33.33)	12(40.00)	12(40.00)	9(30.00)	13(43.34)	46(38.34)	45(37.50)
High (21-30)*	1(3.34)	18(60.00)	0(0.00)	16(53.33)	1(3.34)	15(50.00)	0(0.00)	11(36.66)	2(1.66)	60(50.00)

Note: Figures in the parenthesis are the frequency and percentage; *indicates knowledge scores-i.e

Table 2: Mean knowledge scores and percentage knowledge gain among the livestock farmers

Divisions	Mean knowledge score		Mean knowledge gain score(post-pre)	Percent of knowledge gain
	Pre-exposure	Post- exposure		
Bengaluru Division	9.53 ± 0.714	22.40 ± 1.047***	12.87	42.90 %
Mysuru Division	8.60 ± 0.511	22.10 ± 1.263***	13.50	45.00%
Belagavi division	9.20 ± 0.788	21.03 ± 1.132***	11.83	39.43%
Kalburgi division	7.87 ± 0.674	19.13 ± 1.194***	11.26	37.53%
Total	8.80 ± 0.365	21.17 ± 0.739***	12.37	41.23 %

*** highly Significant at P<0.0001

and post exposure stages revealed that most of the respondents (50.00%, 63.34%, 56.66% & 70.00%) from Bengaluru, Mysuru, Belagavi and Kalburgi divisions were under low knowledge level at pre-exposure stage followed by medium knowledge level (46.66%, 36.66%, 40.00% & 30.00%) and high knowledge level (3.34%, 0.00%, 3.34% & 0.00%), which showed the order of distribution from more farmers in low level, less farmers in medium level and fewer farmers in high level of knowledge at pre-exposure stage. However at post exposure stage, good number of respondents respectively (60.00%, 53.33%, 50.00% & 36.66%) were under high knowledge level followed by medium knowledge level (33.34%, 33.33%, 40.00% & 43.34%) and low knowledge level

(6.66%, 13.34%, 10.00% and 20.00%).

After the mobile App usage, the order of distribution got reversed, which shows the shift of farmers from low knowledge profile towards medium and high knowledge profile. Similar trends were also observed in pooled figures. The reason for low knowledge level on fodder production at pre-exposure stage could be due to the fact that the respondents were less aware of growing fodders exclusively for feeding their livestock and most were feeding only left over residues from agriculture. Extension is to bring about planned changes in behavioral complex of farmers i.e. knowledge, attitude and skill. The developed fodder mobile app was able enough to bring desirable change in farmers' knowledge on fodders. This

Table 3: Perception of Fodder App among livestock owners

Category	Bengaluru Division		Mysuru Division		Belagavi Division		Kalburgi Division		Total Perception	
	No.	%	No.	%	No.	%	No.	%	No.	%
	Unfavourable perception (13-21)	0	0.00	0	0.00	0	0.00	0	0.00	0
Neutral perception (22-30)	7	23.34	6	20.00	6	20.00	9	30.00	28	23.34
Favourable perception (31-39)	23	76.66	24	80.00	24	80.00	21	70.00	92	76.66

fodder app made the farmers to know, remember and to recollect the things learnt & experienced. These findings were in line with *Vidya et al. (2010)*, *Roy and Tiwari (2014)* and *Sangappa (2015)*, where their respective expert system namely, *Educational Video-DVD on Dairy Health Management Practices*, *Goat Health Management Information System (GHMIS) for goat farmers* and *Web-enabled Interactive Information Delivery System (WIIDS) for Dairy Stakeholders* resulted in improvement in knowledge level after exposure.

Differences in the mean scores of knowledge levels and percentage knowledge gain among the livestock farmers : It could be noticed from Table 2 that the pre and post-exposure mean knowledge score obtained by

the respondents of Bengaluru, Mysuru, Belagavi and Kalburgi divisions were 9.53, 8.60, 9.20, 7.87, 8.80 and 22.40, 22.10, 22.10, 21.03, 19.13, 21.17 respectively. The difference between pre and post-exposure scores of Bengaluru, Mysuru, Belagavi and Kalburgi divisions were 12.87, 13.50, 11.83 and 11.26 which indicated the mean knowledge scores with percentage significant knowledge gain of 42.90 per cent, 45.00 per cent, 39.43 per cent and 37.53 per cent respectively. The individual's scores at pre and post-exposure stage were analyzed using paired 't' test and the result revealed that 't' values were statistically highly significant for respondents from all divisions. A clear glance also showed the percentage knowledge gain of 41.23 among all respondents from study



Fig 3. Sub-icons under each fodder variety



Fig 4. Play mode view

area, wherein mean knowledge score at pre and post exposure stages were 8.80 and 21.17 with difference of knowledge gain showing 12.37. The 't' value of overall respondents was found to be statistically highly significant.

It could be understood that the developed fodder mobile app proved to be effective in terms of knowledge gain on fodder production among livestock farmers of Karnataka. Developed 'Interactive video-DVD' by Vidya *et al.*, (2010) and 'Multimedia Digital Video Disk' by Meena *et al.*, (2014) for dairy owners found to be effective in terms of knowledge regarding dairy health management practices and improved dairy farming practices respectively.

Perception among the livestock farmers about the developed Mobile Fodder App: Observations made on the overall perception of Mobile Fodder App (Table 3) revealed that, more than three fourth of respondents (76.64%) had perceived mobile app by favourable perception followed by neutral (23.33%) and none of the respondents from the study area had unfavourable perception.

Fodder App, having each fodder variety with separate sub-icons (General information, Soil type, Weather condition, Cultivation requirements, Cultivation methods, Harvesting along with yield) was presented for simple understanding (Fig.3). Play mode has audio in Kannada language sequenced with suitable images to catch the farmer's attention and interest (Fig. 4).

The mobile app conveys comprehensive information regarding fodder production which favours the farmer's attitude in improving their self-confidence. The findings were in consonance with Phand *et al.*, (2013) and Meena *et al.*, (2014), where their respective expert systems, 'Animal Health Information System (AHIS) and Multimedia Digital Video Disk' were perceived by majority with high percentages.

CONCLUSION

This attempt to reach the unreached through digitalization is a breakthrough step, as government of India's 'Digital India' programme is the major concept of the hour. Study showed the way to utilize the opportunity to disseminate information to farming community by tapping the increased penetration of smart phone even in rural areas of the country. This mode of disseminating information in the form of android mobile app in local language, which works off line made the farmers to access the information on fodder production in their hands as ready reckoner. The results revealed Fodder App was favorably perceived by majority and significantly increased the knowledge among livestock owners. So, many such efforts can be made in near future to harness the advent of technologies to disseminate the knowledge/information to farming community on different animal husbandry topics.

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